

REMARKS

Claims 14, 15 and 20-29 are pending in this application. By this Amendment, claims 14 and 15 are amended; claims 1-13 and 16-19 are canceled; and claims 20-29 are added.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Kallis during in the August 18 telephone interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

Claims 2, 4-6, 8, 11 and 16-19 are withdrawn from consideration.¹ Claims 2, 4-6, 8, 11 and 16-19 are cancelled herein. In addition, claim 14 has been amended to delete reducing or inhibiting carotenoids since this subject matter relates to the use of the vector of claim 11, which is withdrawn from consideration.

Claims 1, 3, 7, 9, 10 and 12-15 are rejected under 35 U.S.C. §112, second paragraph. Claims 1, 3, 7, 9, 10, 12 and 13 are canceled. Claims 14 and 15 has been amended to incorporate the features of claim 10. In incorporating claim 10 into claims 14 and 15, the phrase that is indicated in the Office Action to be contrary to art recognized terminology has been replaced with language that is clearly recognized in the art. Based on these amendments, it is respectfully submitted that the rejection under 35 U.S.C. §112, second paragraph, should be reconsidered and withdrawn.

Claims 1, 3, 7, 9, 10 and 12-15 are rejected under 35 U.S.C. §112, first paragraph, for allegedly lacking written description. Applicants respectfully traverse the rejection.

In University of California v. Eli Lilly & Co., 119 F.3d 1559, 1568-69, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997), the Federal Circuit held that "a cDNA is not defined or described by the mere name 'cDNA,' even if accompanied by the name of the protein that it

¹ Claim 15 is listed on the Office Action Summary as both a rejected and a withdrawn claim. However, since claim 15 is clearly part of elected Group I and was clearly rejected in the Office Action, it is assumed that this claim was mistakenly listed as a withdrawn claim.

encodes, but requires a kind of specificity usually achieved by means of the recitation of the sequence of nucleotides that make up the cDNA." However, the present specification does not merely define or describe cDNA by reciting that it encodes the TOCB enzyme. Instead, the specification clearly sets forth in Figure 1 a nucleotide sequence (SEQ ID NO: 1) that encodes for the TOCB enzyme. In addition, the specification clearly describes vectors comprising only a portion of SEQ ID NO: 1. Furthermore, the specification clearly describes "modified nucleotide sequences" having a degree of identity with the reference nucleotide sequence of less than 100%. Specifically, the specification describes modified nucleotide sequences having "approximately at least 70% and better still at least 80% of nucleotides that are identical to those of the nucleotide sequence represented by SEQ ID NO:1, or of its complementary sequence." Page 4, lines 17-27. Thus, although the specification does not specifically describe letter by letter sequences other than SEQ ID NO: 1 that are within the scope of the present claims, the specification clearly describes a representative number of sequences so as to provide written description for the present claims.

The specification clearly provides written description for the present claims. Therefore, the written description rejection should be reconsidered and withdrawn.

Claims 1, 3, 7, 9, 10 and 12-15 are rejected under 35 U.S.C. §112, first paragraph, for allegedly lacking enablement. Applicants respectfully traverse the rejection.

As pointed out in the Office Action, the specification does not set forth letter by letter the sequence of nucleic acids other than SEQ ID NO: 1 that can provide for increased production of carotenoids. However, the specification clearly describes that homologous nucleotide sequences, such as nucleotide sequences having at least 70% and preferably at least 80% homology, can be used in this way. In addition, one of ordinary skill in the art is well aware of the degeneracy of the nucleic acid code. Based on this degeneracy, modifications can be made to nucleic acid without changing in any way the protein encoded

thereby. In addition, it is well within the skill of the art to make other changes to the nucleic acid of SEQ ID NO: 1 that may change the protein encoded thereby without changing the enzymatic properties provided by this modification. Although some experimentation would be necessary to confirm that any given change would not affect the enzymatic activity of the protein encoded thereby, it is respectfully submitted that this experimentation would not be undue. Instead, testing modified nucleotides for their ability to encode for a protein having the same activity as a native protein is considered routine in the art. Thus, one of ordinary skill in the art would be able to practice the present invention as claimed without undue experimentation.

The specification clearly enables one of ordinary skill in the art to practice the claimed invention. Therefore, the enablement rejection should be reconsidered and withdrawn.

Claims 1 and 3 are rejected under 35 U.S.C. §101. Claims 1 and 3 have been canceled, rendering this rejection moot.

Claims 1, 3 and 7 are rejected under 35 U.S.C. §102 over Carol et al. or over Wu et al. Claims 1, 3 and 7 are canceled, rendering these rejections moot.

Claims 1, 3, 7, 9, 10 and 12-15 are rejected under 35 U.S.C. §103 over Hauptmann et al. in view of Carol or Wu. Claims 1, 3, 7, 9, 10, 12 and 13 are canceled. With regard to claims 14 and 15, Applicants respectfully traverse the rejection.

According to the Office Action, Hauptmann teaches carrot and potato transformed with plasmids comprising a tissue specific promoter, a transit peptide and a phytoene synthase gene showing an increase in carotenoids in root and tubers. Hauptmann does not teach or suggest that cells can be transformed with all or a portion of SEQ ID NO: 1 so as to increase production of carotenoids. In addition, the GenBank submissions of Carol and Wu fail to overcome this deficiency of Hauptmann. In particular, there is nothing in these GenBank

submissions that would have suggested that the sequences described therein could be used to transform cells so as to increase production of carotenoids.

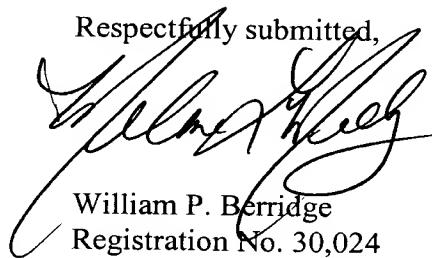
The cited references do not teach or suggest the invention of claims 14 and 15. Therefore, the rejection of these claims under 35 U.S.C. §103 should be reconsidered and withdrawn.

Claims 20-29 have been added to further define the invention. Claims 20-29 depend from one of the already pending claims. These claims are patentable for at least reasons discussed above with regard to the claim on which they depend.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 14, 15 and 20-29 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



A handwritten signature in black ink, appearing to read "William P. Berridge".

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